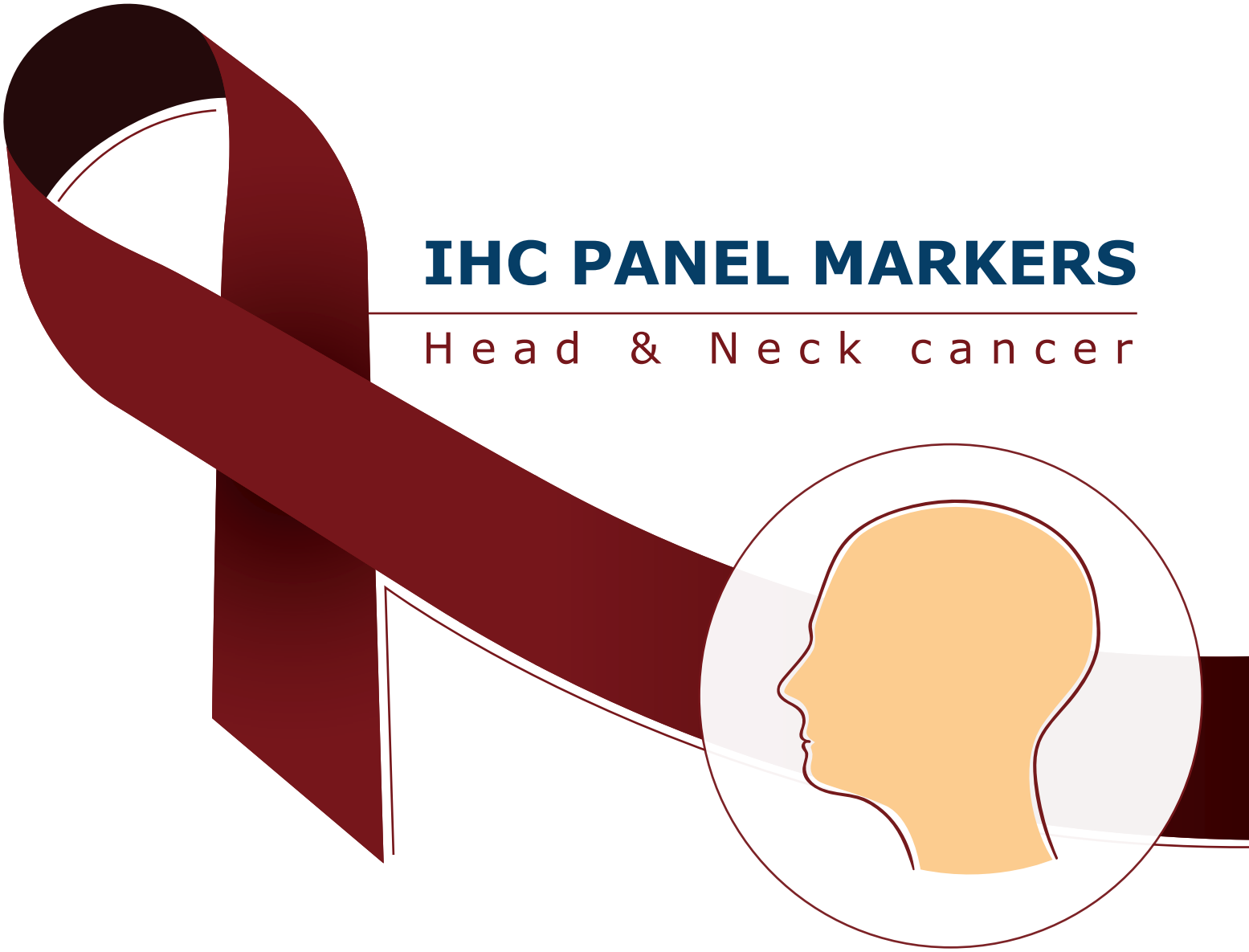


IHC PANEL MARKERS

Head & Neck cancer

BioGenex offers wide-ranging antibodies for several IHC panel for initial differentiation, tumor origin, treatment methods, and prognosis. All BioGenex antibodies are validated on human tissues to ensure sensitivity and specificity. BioGenex comprehensive IHC panels include a range of mouse monoclonal, rabbit monoclonal, and polyclonal antibodies to choose from.

BioGenex offers a vast spectrum of high-quality antibodies for both diagnostic and reference laboratories. BioGenex strives to support efforts in clinical diagnostics and drug discovery development as we continue to expand our antibody product line offering in both ready-to-use and concentrated formats for both manual and automation systems.

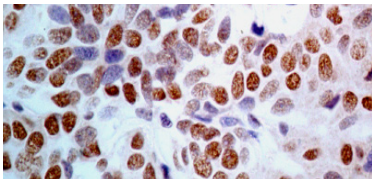
Antibodies for Head & Neck cancer

TTF1, Calcitonin, Thyroglobulin, CD34, CD117, CK7, CK20, p63, p16, p53, CD68, S100, CD27, CEA, EMA, CK cocktail (AE1/AE3), Calponin, CK5&6, CD45, PAX8, MHC, CD27, Cytokeratin 5&6, Podoplanin, MiTF, CD31, Lamin B1, Pygopus 2, R1, GM-CSF, MCM7, GLUT 1, Microglia/AIF1, IgG, CD137, Clusterin, CD57, BOB-1, Retinoblastoma, Histone H3, PIT-1.

BioGenex

IHC PANEL MARKERS - Head & Neck Cancer

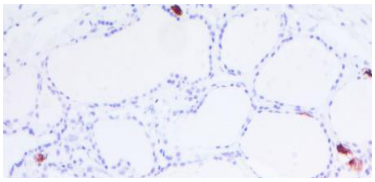
TTF-1(Thyroid Transcription Factor**)**



Thyroid Transcription Factor-1 (TTF-1), also known as thyroid-specific enhancer-binding protein (T/EBP), is a 40 kD protein that is a member of NKx2 family of homeodomain transcription factors that regulates the expression of thyroid- and lung-specific genes. It is a very selective marker for adenocarcinomas of lung and thyroid origin. Nuclear localization of this protein is seen in the epithelial cells of thyroid gland and lung. The anti-TTF-1 antibody is a useful tool for differentiating pulmonary adenocarcinoma from metastatic breast carcinoma and mesothelioma.

Antibody	Clone	Localization	Catalog Family
(TTF-1)	SP141	Nucleus	AN887, AY887, NU887
TTF-1	NX2.1/690	Nucleus	AMA25, MUA25, AXA25

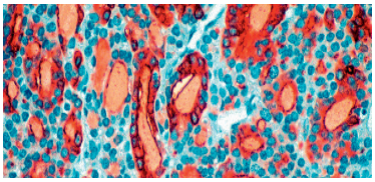
Calcitonin



Calcitonin (CT) is a polypeptide hormone with 32 amino acids synthesized primarily by the thyroid. CT is able to decrease blood calcium levels by direct inhibition of mediated bone resorption and by enhancing calcium excretion by the kidney. Immunohistochemical staining with the anti-calcitonin antibody has proven to be an effective way of demonstrating calcitonin-producing cells in the thyroid. C-cell hyperplasia and medullary thyroid carcinomas stain positive for calcitonin. Studies of calcitonin have resulted in the identification of a wide spectrum of C-cell proliferative abnormalities.

Antibody	Clone	Localization	Catalog Family
Calcitonin	SP17	Cell membrane	AN926, AY926, NU926

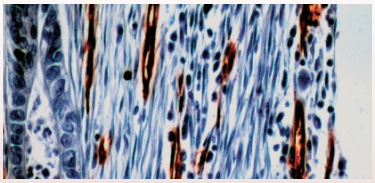
Thyroglobulin



Thyroglobulin is a 19S glycoprotein with a molecular mass of approximately 650 kD. It constitutes 85-100% of the total of all thyroid iodoproteins. Immunohistochemical studies of thyroid carcinomas have revealed that a high portion of differentiated thyroid carcinomas synthesize thyroglobulin. Positive thyroglobulin staining indicates the thyroidal origin of the tumor. Immunohistochemical and electron microscopic findings have disclosed a wide range of cellular differentiation in thyroid adenomas.

Antibody	Clone	Localization	Catalog Family
Thyroglobulin	2H11	Cytoplasm	AM032, AX032, MU032

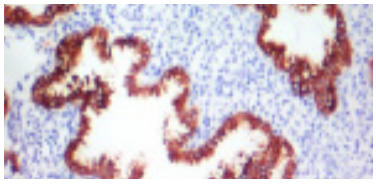
CD34



CD34 functions as a cell-cell adhesion factor and cell-surface glycoprotein. It may also mediate the attachment of stem cells to bone marrow extracellular matrixes or directly to stromal cells. Cells expressing CD34 are normally found in the umbilical cord and bone marrow as hematopoietic cells, and in vascular endothelium. In addition to stem cell recognition, CD34 is expressed by vascular endothelium; it appears that proliferating endothelial cells express this molecule in greater amounts than resting cells. In comparison to factor VIII R Antigen, CD34 is an important marker for quantifying and purifying hematopoietic progenitor/stem cells. It is useful in the identification of tumors with endothelial or lymphoid differentiation. In addition, CD34 aids in the detection of gastrointestinal stromal tumors.

Antibody	Clone	Localization	Catalog Family
CD34	QBEnd/10	Membrane	AM236, AX236, MU236
CD34	EP88	Membrane	AN779, AY779, NU779

Cytokeratin 7



Anti-Cytokeratin 7 (CK7) antibody recognizes an intermediate filament protein (IFP) of 55 kDa. This monoclonal antibody (mAb) is highly specific to cytokeratin 7 and shows no cross-reaction with other IFPs. Cytokeratin 7 is a basic cytokeratin and belongs to type II cytokeratin. Type II cytokeratin is specifically expressed in the simple epithelia lining the cavities of the internal organs and in the gland ducts and blood vessels and is found in most glandular and transitional epithelia; but not in the stratified squamous epithelia. Cytokeratin 7 is expressed in the epithelial cells of the ovary, lung, and breast but not of the colon, prostate, or gastrointestinal tract. Anti-Cytokeratin 7 mAb is highly useful in distinguishing ovarian carcinomas (CK 7+) from colon carcinomas (CK 7-).

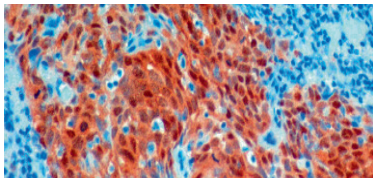
Antibody	Clone	Localization	Catalog Family
Cytokeratin 7	KRT7/760	Cell membrane	AM944, AX944, MU944
Cytokeratin 7	OV-TL12/30	cytoplasm	AM255, MU255, AX255

Cytokeratin 20

This monoclonal antibody recognizes an intermediate filament protein of 46 kDa, identified as cytokeratin 20 (KRT20, CK20). CK20 is abundantly expressed in goblet cells and enterocytes of the gastrointestinal tract. It plays a significant role in maintaining keratin filament organization in intestinal epithelia. It is a useful marker of pancreatic and colorectal cancer and has been detected in adenocarcinomas of the colon, stomach, and biliary tract. Diseases associated with CK20 include Merkel cell carcinoma and glandular cystitis. Breast carcinomas are generally non-reactive.

Antibody	Clone	Localization	Catalog Family
Cytokeratin 20	KRT20/1992	Cell membrane	AM946, AX946, MU946
Cytokeratin 20	IT-Ks20.8	cytoplasm	AM315, MU315, AX315

p16 (INK4a)

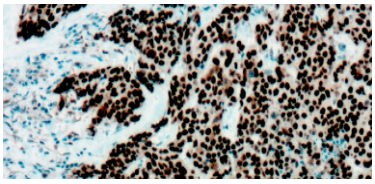


p16(INK4a) is a tumor-suppressor protein. The genetic and epigenetic abnormalities in genes controlling the G1 checkpoint can lead to both escape from senescence and cancer formation. The interaction of p16(INK4a) family members can be a binary complex with CDK4/6 or ternary complex with cyclin D-bound CDK4/6 and ultimately results in the inhibition of cell cycle progression. As such, expression of p16 (INK4a) is commonly associated with cellular senescence, and disruption of the p16(INK4a) gene is frequently observed in human tumors. The p16(INK4a) locus is deleted in a wide spectrum of tumors including melanoma, pancreatic adenocarcinoma, glioblastoma, certain leukemias, and non-small cell lung cancer. For research use only. Not for use in diagnostic procedures.

Antibody	Clone	Localization	Catalog Family
p16 (INK4a)	G175-405	Nucleus and/or Cytoplasm	AM540, AX540, MU540
p16	IHC116	Nucleus/Cytoplasm	AMA08, AXA08, MUA08

IHC PANEL MARKERS - Head & Neck Cancer

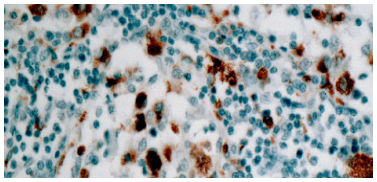
p53



Tumor protein p53, a nuclear protein, plays an essential role in the regulation of cell cycles, specifically in the transition from G0 to G1. It is found in very low levels in normal cells, and it functions as a tumor suppressor within a variety of tumors by either stimulating apoptosis or growth arrest in deference to cell type and physiological factors. p53 is overexpressed in over 50% of human cancers. Positive staining of p53 detected by immunohistochemistry has been observed in colon cancer, breast cancer, lung cancer, prostate cancer, and ovary cancer.

Antibody	Clone	Localization	Catalog Family
p53	EP9	Nucleus	AN728, AY728, NU728
p53	BP53-12-1	Nucleus	AM195, AX195, MU195
p53	DO7	Nucleus	AM239, AX239, MU239
p53	1801	Nucleus	AM240, AX240, MU240

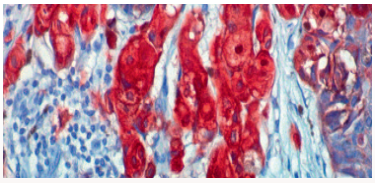
CD68



CD68 antigen, a 110-kD type 1 membrane glycoprotein, appears in endosomes or lysosomes (long variant) and to a lesser extent on the cell surface (short variant). It is highly expressed by blood monocytes and tissue macrophages. It is also reported to be expressed in immature myeloid cells, lymphoma, many tumor cell lines, and some epithelial tumors, although the labeling is usually less intense than in macrophages. Clone KP1 reacts strongly with a fixative-resistant epitope of CD68 protein that is expressed by virtually all macrophages of the human body. The CD68 antibody can be used as part of a panel in the evaluation of poorly differentiated neoplasms in cytological materials.

Antibody	Clone	Localization	Catalog Family
CD68	KP1	Cytoplasm	AM416, AX416, MU416
CD68	CD68/G2	Cytoplasm	AM549, AX549, MU549

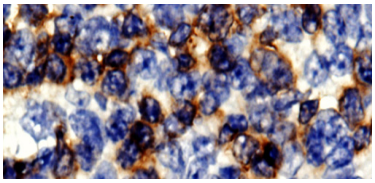
S100



S100 protein is a low molecular weight soluble protein first isolated from the brain and initially believed to be exclusively a glial marker. Two subunits of S100 protein have been identified. and they are differently expressed by various cells. the beta subunit is present in all S100 positive cells and tumors. In contrast, the alpha subunit is detectable only in neurons and lymph node macrophages. The presence of S100 protein is readily demonstrated in routinely processed malignant melanomas. S100 protein also has been found in normal melanocytes, Langerhans cells, histiocytes, chondrocytes, lipocytes, skeletal and cardiac muscle, Schwann cells, epithelial and myoepithelial cells of the breast, salivary and sweat glands, in addition to glial cells. Neoplasms derived from these cells also express S100 protein to varying degrees. A large proportion of well-differentiated tumors of the salivary gland, adipose, cartilaginous tissue, and Schwann cell-derived tumors express S100 protein.

Antibody	Clone	Localization	Catalog Family
S100	Polyclonal	Cytoplasm	AR991, AW991, PU991
S100	S100B/1012	Cytoplasm/Nucleus	AMA15, AXA15, MUA15
S100	EP32	Cytoplasm	AN713, AY713, NU713

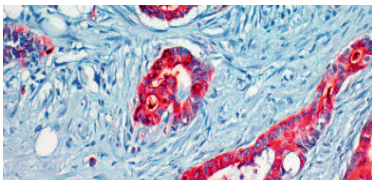
CD27



CD27 or TNFRSF7 is a type I transmembrane protein and TNF receptor that is expressed on subsets of T, B, NK, and hematopoietic progenitor cells. CD27 controls the activity of these cells by engaging with CD70, which is transiently expressed by cells of the immune system upon activation. Studies have demonstrated that the interaction between CD27 and its ligand, CD70, plays a role in providing costimulation for prolonged lymphocyte survival, enhanced T-cell proliferation, and memory-cell formation. Preclinical studies with fully-human agonistic antibodies to CD27 indicate that responses to CD27 stimulation are recapitulated by human lymphocytes in vitro and in vivo and can promote adaptive immunity in a variety of tumors models.

Antibody	Clone	Localization	Catalog Family
CD27	Polyclonal	Cell Membrane	AR912, AR912, PU912

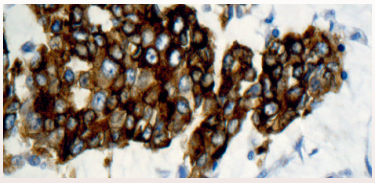
Carcinoembryonic Antigen (CEA)



CEA consists of a heterogeneous family of related oncofetal 200 kD glycoproteins that are secreted into the glycocalyx surface of gastrointestinal cells. Usually, CEA is demonstrated as linear labeling of the apical poles of cells lining the glandular lumen and, occasionally, as weak staining near the apex of colonic epithelial cells. Pancreatic carcinomas, testicular tumor, gallbladder neoplasms, and granular cell myoblastomas stain positive, whereas malignant tumors of the brain, prostate, skin, lymphoreticular tissues, hepatocellular carcinomas, esophageal squamous cell carcinomas, and mesothelioma fail to stain for CEA. This antibody stains carcinoembryonic antigen in the cytoplasm of positive cells.

Antibody	Clone	Localization	Catalog Family
Carcinoembryonic Antigen (CEA)	B01-94-11M-P	Cytoplasm	AM009, AX009, MU009
Carcinoembryonic Antigen (CEA)	CEA88	Cytoplasm	AM365, AX365, MU365
Carcinoembryonic Antigen (CEA)	Polyclonal	Cytoplasm	AR009, AW009
CEACAM1	E-1	Cytoplasm	AMC87,MUC87, AXC87

Epithelial Membrane Antigen (EMA)

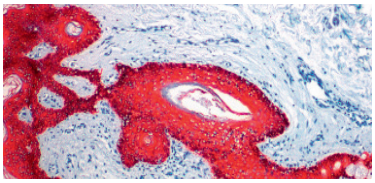


The mucin antigen recognized by Mc5 is a glycosylated molecule with a molecular mass of 400 kD. The sequence to which this antibody binds is Thr-Arg-Pro-Ala-Pro. Although EMA is primarily located in mammary gland epithelium, other normal epithelia (e.g., lung) will also react against EMA antibody. Staining, however, is the strongest in mammary epithelia. The combination of positive staining for keratin with negative EMA can be used to phenotype the above-mentioned epithelial tumors.

Antibody	Clone	Localization	Catalog Family
Epithelial Membrane Antigen (EMA)	Mc5	Membrane & Cytoplasm	AM182, AX182, MU182
Epithelial Membrane Antigen (EMA)	E29	Membrane & Cytoplasm	AM057, AX057, MU057
Epithelial Membrane Antigen (EMA)	GP1.4	Membrane & Cytoplasm	AMB78, MUB78, AXB78

IHC PANEL MARKERS - Head & Neck Cancer

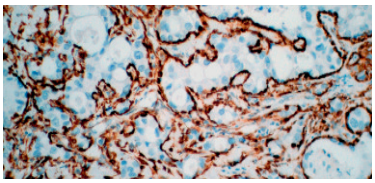
Cytokeratin Cocktail



Human cytokeratins (40 kD to 68 kD) are a family of water-insoluble proteins that form a major part of the cytoskeleton of epithelial cells. Immunohistochemical analysis of a large variety of neoplasm's has established keratin protein immunohistochemistry as an important aid for classification of epithelial neoplasms. Monoclonal antibodies AE1 and AE3 recognize the acidic and basic subfamilies of cytokeratin, respectively. Thus, the combination of these two antibodies can be used to detect almost all human epithelia. These antibodies show no cross-reactivities with other cytoskeletal proteins. This monoclonal antibody cocktail can be used to detect almost all human epithelia. Membrane and cytoplasmic staining is seen in epithelial cells.

Antibody	Clone	Localization	Catalog Family
Cytokeratin Cocktail	AE1 and AE3	Cytoplasm	AM071, AX071, MU071
Cytokeratin Cocktail	LL002+DEK-10+RCK108 +OVTL12/ 30+C11	Cell Membrane	AM372, AX372, MU372

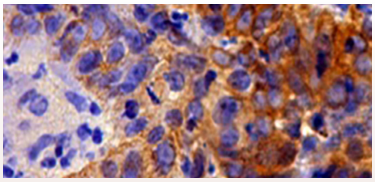
Calponin



Calponin is a smooth muscle specific, actin-, tropomyosin- and calmodulin-binding protein thought to be involved in the regulation of actomyosin as well as the regulation or modulation of contraction. Calponin antibody has been found to be useful as a marker for myoepithelial and basal lamina in differentiating micro-invasive from in situ ductal carcinomas of the breast. Calponin antibody may also have applications in malignant myoepithelium and pleomorphic adenoma of the salivary gland as well as a useful marker for fine needle aspirates of papillary breast lesions.

Antibody	Clone	Localization	Catalog Family
Calponin	EP63	--	AN821, AY821, NU821
Calponin	CALP	Cytoplasm	AM333, AX333, MU333
Calponin-1	EP63	Cytoplasm	AN821, NU821, AY821

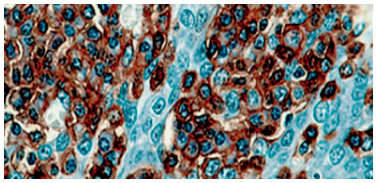
Cytokeratin 5 & 6



Cytokeratins are intermediate filament proteins expressed in the cytoplasm of epithelial cells. The mitotically active basal layers of most stratified squamous epithelia express 10% to 30% of their total protein as keratin. The two keratins specifically type II keratin CK5 and type II CK6, which essentially form 8-nm filaments. CK5 is a useful immunohistochemical marker in different studies of mesothelioma, and an expression is a key tool for the histological differential diagnosis with adenocarcinomas, especially when confronted with metastatic tumors of unknown origin. CK5 labels myoepithelial cells of breast and prostate basal cells.

Antibody	Clone	Localization	Catalog Family
Cytokeratin 5 & 6	EP24 & EP67	Cytoplasm	AN892, AY892

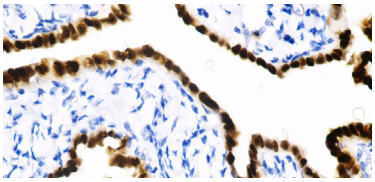
CD45



CD45 antigen (leukocyte common antigen), a unique and ubiquitous membrane glycoprotein with a molecular mass of about 200 kDa is expressed on almost all hematopoietic cells except for mature erythrocytes. CD45 has a functional role in hematopoietic cell activation and differentiation. Anti-CD45 (anti-leukocyte common antigen) is routinely used to aid the differential diagnosis of undifferentiated neoplasms, whenever malignant lymphoma is suspected by the morphological or clinical data. Therefore, a positive result is highly indicative of hematolymphoid origin. Certain types of hematolymphoid neoplasms may lack CD45 (Hodgkin's lymphoma, some T-cell lymphomas, and some leukemias), so its absence does not rule out a hematolymphoid tumor. CD-45 antibody is expressed almost exclusively by cells of hematopoietic lineage and is present in most benign and malignant lymphocytes as well as plasma cell precursors.

Antibody	Clone	Localization	Catalog Family
CD45	PD7/26/16 & 2B11	Membrane	AM111, AX111, MU111
CD45	LJ 27.9	Membrane & Cytoplasm	AM338, AX338, MU338
CD45	MEM55+LJ 27.9	Membrane	AM371, AX371, MU371
CD45	MB1	Membrane	AM157, AX157, MU157
CD45	MT2	Membrane	AM156, AX156, MU156
CD45	UCHL-1	Membrane & Cytoplasm	AM113, AX113, MU113
CD45	2B11 & PD7/26	Cell membrane	AM941. AX941, MU941

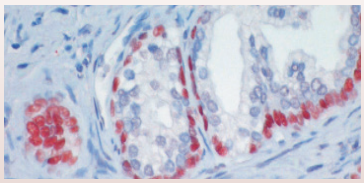
PAX8, Clone PAX8/2774R



PAX8 is a member of the paired box (PAX) family of transcription factors, typically containing a paired box domain, an octapeptide, and a paired-type homeodomain. PAX proteins play critically important roles in development by regulating transcriptional networks responsible for embryonic patterning and organogenesis; a subset of PAX proteins also maintain functional importance during postnatal development. It is expressed during organogenesis of thyroid gland, kidney and Mullerian system. Research studies have implicated genetic mutations that result in aberrant expression of PAX genes in a number of cancer subtypes (1-3), with members of subgroups II and III identified as potential mediators of tumor progression.

Antibody	Clone	Localization	Catalog Family
PAX8, Clone PAX8/2774R	PAX8/2774R	Nucleus	ANB31, AYB31

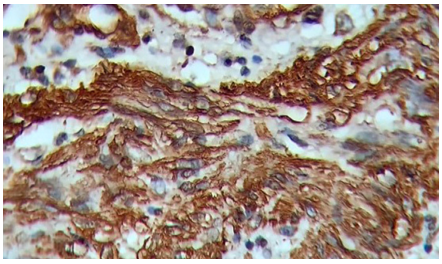
p63



This antibody will detect all isoforms of p63 since the epitope is within the DNA binding domain. The p63 protein is a member of the p53 family, which also includes p73. The p63 protein is detected in proliferating cells of epithelium, cervix, urothelium, and prostate.

Antibody	Clone	Localization	Catalog Family
p63	4A4	Nucleus	AM418, AX418, MU418
p63	TP63/1423R	Nucleus	ANC90, NUC90, AYC90

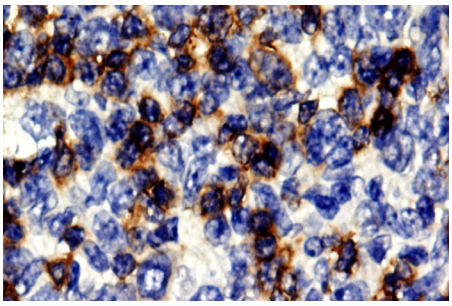
Myosin Heavy chain



Smooth Muscle-Myosin Heavy Chain (SM-MHC) is a structural protein located in the cytoplasm which is a major component of the contractile apparatus of the smooth muscle cells, as well as a myoepithelium-associated protein. The antibody to smooth muscle myosin heavy chain stains myoepithelial cells which help in distinguish benign breast lesions and carcinoma in situ from invasive tumors. SM-MHC also stains intact myoepithelial cell (MEC) layers in bronchioloalveolar lesions which is very helpful in differentiating benign and malignant tumors.

Antibody	Clone	Localization	Catalog Family
Myosin Heavy chain	MYH11/4337R	Cytoplasm	ANC62, AYC62

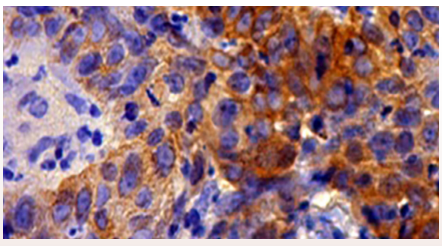
CD27



CD27 or TNFRSF7, is a type I transmembrane protein and TNF receptor that is expressed on subsets of T, B, NK, and hematopoietic progenitor cells. CD27 controls the activity of these cells by engaging with CD70, which is transiently expressed by cells of the immune system upon activation . Studies have demonstrated that the interaction between CD27 and its ligand, CD70, plays a role in providing costimulation for prolonged lymphocyte survival, enhanced T-cell proliferation, and memory-cell formation. Preclinical studies with fully-human agonistic antibodies to CD27 indicate that responses to CD27 stimulation are recapitulated by human lymphocytes in vitro and in vivo and can promote adaptive immunity in a variety of tumors models.

Antibody	Clone	Localization	Catalog Family
CD27	Polyclonal	Cytoplasm	AR912, AW912

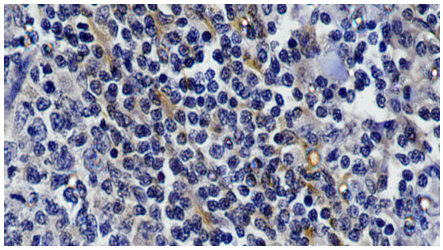
Cytokeratin 5&6



The two keratins specifically type II keratin CK5 and type II CK6, which essentially form 8-nm filaments. CK5 is a useful immunohistochemical marker in different studies of mesothelioma, and the expression is key tool for the histological differential diagnosis with adenocarcinomas, especially when confronting with metastatic tumors of unknown origin. CK5 labels myoepithelial cells of breast and prostate basal cells. The human type II Cytokeratin 6 (CK6) a 56 kD protein expressed on stratified epithelia including oral mucosa, esophagus, basal layer of epidermis, the outer root sheath of hair follicles, and in glandular epithelia. CK6 paired with CK5 is useful to differentiate mesothelioma (positive) from lung carcinoma (negative) or metastatic carcinoma (negative) in the pleura.

Antibody	Clone	Localization	Catalog Family
Cytokeratin 5&6	EP24 & EP67	Cytoplasm	AN892, AY892

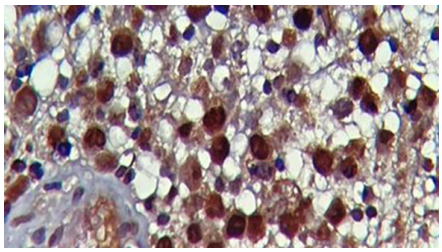
Podoplanin



Podoplanin, also known as glycoprotein 36 (gp36), PA2.26 antigen, T1-alpha (T1A), and aggrus, is a 36 kDa type I transmembrane sialoglycoprotein present on the surface of podocytes in kidney glomeruli and the parietal cells of Bowman's capsule. It is localizes in stromal cells of peripheral lymphoid tissue, follicular DCs and thymic epithelial cells. Podoplanin plays a crucial role in maintaining the unique shape of podocytes and serves as a ligand for CLEC-2. It is also directly involved in cell migration, aids metastases formation and tumor cell invasion of tissue. Research studies have shown that Podoplanin expression is upregulated in a number of tumor types including colorectal cancers, oral squamous cell carcinomas, and germ cell tumors, with higher expression levels often associated with more aggressive tumors.

Antibody	Clone	Localization	Catalog Family
Podoplanin	PDPN/4009R	Membrane	ANB95, AYB95
Podoplanin	D2-40	cytoplasm and membrane	AMD43, MUD43, AXD43
Podoplanin	PDPN/1433	cytoplasm and membrane	AMB91, MUB91, AXB91

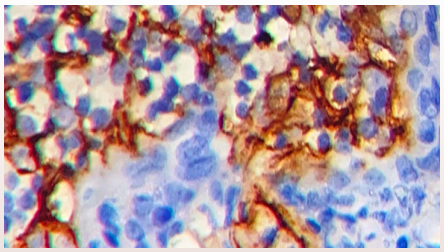
MiTF



MiTF (microphthalmia-associated transcription factor) is a melanocytic nuclear protein with basic helix-loop-helix (bHLH), leucine-zipper domains. It can directly associate with DNA as a homodimer and plays a major role as a master regulator in melanocyte proliferation, osteoclastogenesis and RPE (Retinal Pigment Epithelium) differentiation. The expression of MiTF is seen in melanocytes, osteoclasts, mast cells and heart. It functions as a melanoma oncogene in humans and mutations in the associated gene causes Waardenburg Syndrome type II in humans.

Antibody	Clone	Localization	Catalog Family
MiTF	C5/D5	Nucleus	AMA63, AXA63

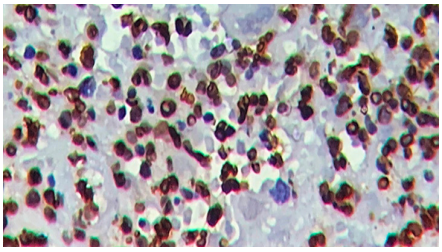
CD31



CD31, also known as PECAM-1 (platelet endothelial cell adhesion molecule 1) is a transmembrane glycoprotein belongs to immunoglobulin supergene family of adhesion molecules. The stem cells in hematopoietic system express CD31 which are used for identifying and determining concentration of these cells for bone marrow transplantation and experimental studies. The expression of CD31 is found on normal, benign and malignant endothelial cells and hence, considered to be a sensitive and specific marker for vascular differentiation. The CD31 expression levels determine the extent of tumor angiogenesis and imply rapidly growing tumor and a predictor of tumor recurrence.

Antibody	Clone	Localization	Catalog Family
CD31	JC/70A	Mem & Cyt	AMC30, AXC30
CD31	C31.3+C31.7 +C31.10	cytoplasm	AM979, MU979, AX979

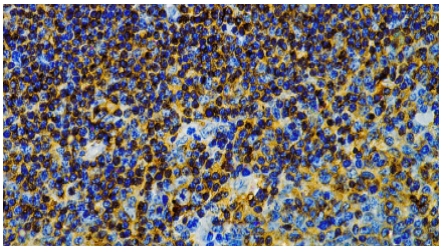
Lamin B1



Lamin B1 (LMNB1) is a heavily phosphorylated type V intermediate filament and a component of nuclear lamina. The lamin family has been divided into types A and B and is important in maintaining integrity of nuclear envelope and cellular morphology. They play a major role in regulating nuclear functions and activities, including DNA replication and transcription, cell cycle regulation, cell development and differentiation, nuclear and chromatin organization, nuclear migration and apoptosis. Mutations in Lamin B1gene causes autosome-dominant leukodystrophy, an adult-onset demyelinating disorder characterized by symmetrical widespread myelin loss in the central nervous system with a phenotype similar to chronic progressive multiple sclerosis.

Antibody	Clone	Localization	Catalog Family
Lamin B1	A-11	Nucleus	AMC35, AXC35

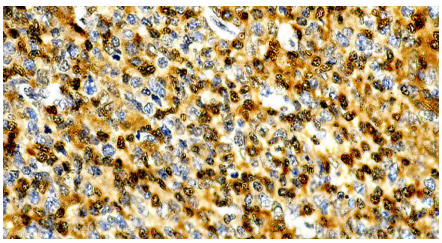
PIT-1



PIT-1 (Pituitary-specific transcription factor 1) also known as POU1F1, GHF-1 (Growth hormone factor 1), CPHD1, is a transcription factor belongs to POU homeodomain family. It is essential for the anterior pituitary gland development and hormone expression in mammals. PIT1 is also important for regulation of five distinct hormone-producing cell lineages, including somatotropes, lactotropes, thyrotropes, corticotropes, and gonadotropes. Loss of Pit-1 expression results in combined pituitary hormone deficiency (CPHD) of growth hormone, Prolactin and thyroid stimulating hormone.

Antibody	Clone	Localization	Catalog Family
PIT-1	PIT1/7262	Nucleus	AMD10, MUD10, AXD10

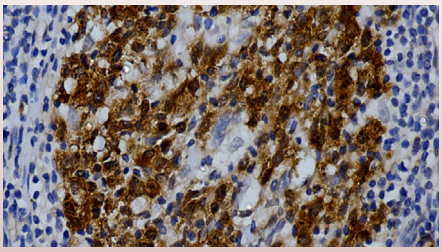
Pygopus 2



Pygopus 2 (also designated as PYGO2) is a 41 kDa, 406 amino acid transcriptional Coactivator. It contains three domains- an N terminal NLS, a proline-rich region and a zinc-finger PHD-type domain that is involved in Wnt signaling pathway. Pygopus 2 is localized to nucleus and acts in concert with BCL-9 and TCF to retain beta -Catenin during Wnt-signaling. Pygopus 2 overexpression enhances primary tumor growth and local invasion to draining lymph nodes in breast carcinoma, Prostate carcinoma, advanced NSCLC, gliomas, Colorectal Carcinomas.

Antibody	Clone	Localization	Catalog Family
Pygopus 2	B-12	Nuc & Cyt	AMC44, AXC44

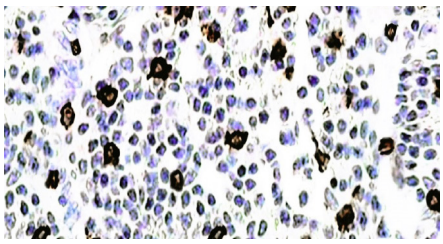
R1



R1 subunit contains allosteric regulatory sites and is present throughout the cell division cycle, but downregulated in quiescent cells. R1 is involved in carcinogenesis, tumor progression and alterations in the gene is associated with Beckwith-Wiedemann syndrome, Wilms tumor, rhabdomyosarcoma, adrenocrotical carcinoma, and lung, ovarian, and breast cancer.

Antibody	Clone	Localization	Catalog Family
R1	A-10	Cyt & Mem	AMC49, AXC49

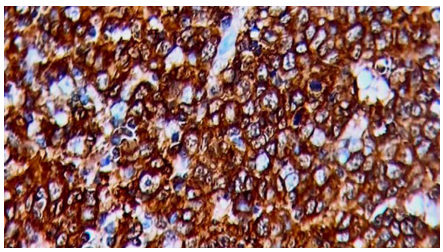
CD117



c-kit (CD117) is encoded by proto-oncogene, it is a transmembrane, tyrosine kinase receptor expressed on numerous diverse fetal and adult cells including hematopoietic cells, mast cells, melanocytes, germ cells, and the interstitial cells of Cajal.

Antibody	Clone	Localization	Catalog Family
CD117	T595	Membrane/Cytoplasm	AM423, MU423, AX423

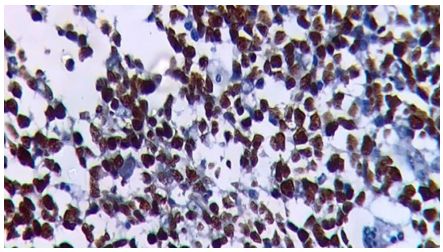
GM-CSF



GM-CSF (Granulocyte-Macrophage colony-stimulating factor) also known as colony stimulating factor 2 (CSF2), is a 14.6kDa monomeric hematopoietic growth factor secreted by macrophages, activated T-cells, B-cells, mast cells, NK cells, endothelial cells and fibroblasts. It is a pleiotropic cytokine that stimulates the growth and differentiation of granulocytes, macrophages, erythrocytes, early megakaryocytes and eosinophil from bone marrow progenitor cells.

Antibody	Clone	Localization	Catalog Family
GM-CSF	CSF2/3403	Ext/Cyt	AMC56, AXC56

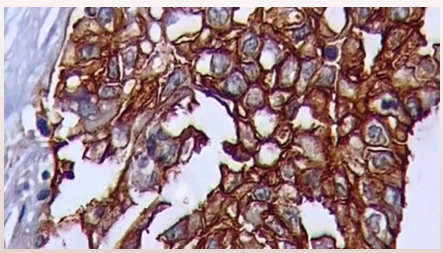
MCM7



The protein encoded by this gene is a highly conserved mini chromosome maintenance protein (MCM) which is essential for the initiation of eukaryotic genome replication. The hexametric protein complex formed by the MCM proteins is a key component of the pre-replication complex which is involved in the formation of replication forks and with the recruitment of other DNA replication related proteins. Meier-Gorlin Syndrome 1 and Follicular Adenoma are the diseases associated with MCM7. The related pathways are Mitotic G1-G1/S phases and CDK-mediated phosphorylation and removal of Cdc6.

Antibody	Clone	Localization	Catalog Family
MCM7	SPM379	Nucleus	AMC57, AXC57

GLUT 1



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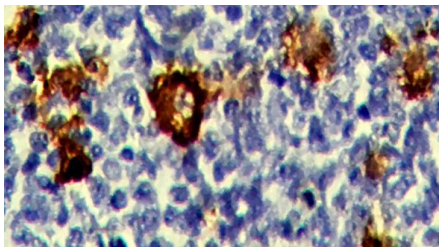
Antibody	Clone	Localization	Catalog Family
GLUT 1	GLUT1/3132R	Membrane	ANC91, AYC91

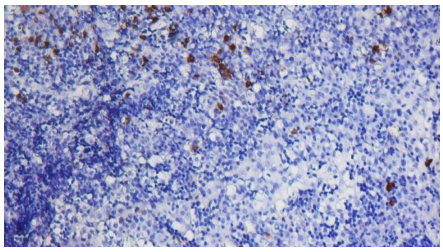
Microglia/AIF1



Allograft inflammatory factor 1 (AIF1), also known as IBA1, daintain and Protein G1, is an actin-binding protein. Actinbinding protein that enhances membrane ruffling and RAC activation enhances the actin-bundling activity of LCP1, binds calcium and plays a role in RAC signaling and in phagocytosis.It may play a role in macrophage activation and function. AIF1 also promotes the proliferation of vascular smooth muscle cells and of T-lymphocytes. In an unstimulated state, AIF1 colocalizes with actin, and upon stimulation, translocates to lamellipodia. It is also a marker of human microglia and is expressed by macrophages in injured skeletal muscle. The gene encoding AIF1 resides in the tumor necrosis factor (TNF) cluster of genes, located in the region represented by the human major histocompatibility complex (MHC).

Antibody	Clone	Localization	Catalog Family
Microglia/AIF1	AIF1/2493	Cyt & Mem	AMA70, AXA70

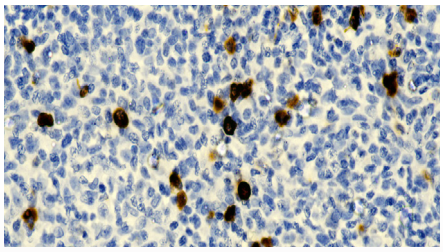
IgG



The molecular weight of IgG is 150,000. It consists of two gamma heavy chains and two kappa or lambda light chains. Immunohistochemical techniques have been used to identify immunoglobulins in the classification of leukemias, plasmacytomas, and certain non-Hodgkin?s lymphomas. In addition, immunoglobulin immunohistochemistry has been widely used in nephropathology and dermatopathology for studying a variety of immune diseases. The patterns of reactivity to IgG, IgA, IgM, C3, kappa, and lambda light chains can be used for the characterization of certain kinds of kidney and skin diseases.

Antibody	Clone	Localization	Catalog Family
IgG	RWP49	Mem/Cyt	AMB23, AXB23

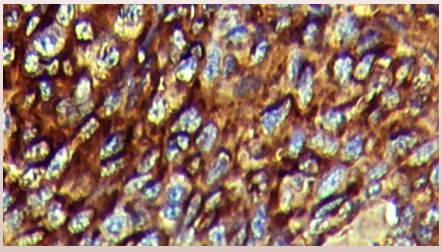
CD137



CD137, also known as TNFRSF9 or 4-1BB, is a member of the tumor necrosis factor receptor superfamily, represents a promising target for enhancing antitumor immune responses. It is an inducible costimulatory molecule expressed mainly on activated T cells. The functions of CD137 in T lymphocytes include regulating activation, proliferation and apoptosis. The ligand for CD137, known as 4-1BBL, is expressed on activated macrophages, mature B cells, hematopoietic stem cells, and myeloid progenitor cells.

Antibody	Clone	Localization	Catalog Family
CD137	BBK-2	Membrane	AMB03, AXB03

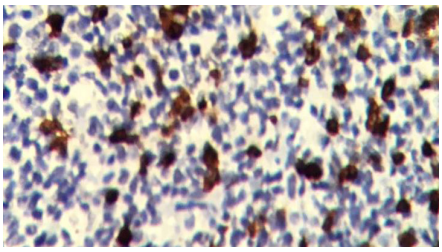
Clusterin



Clusterin, also known as Apolipoprotein J, Sulfated Glycoprotein 2 (SGP-2), TRPM-2, and SP-40,40, is a secreted multifunctional glycoprotein that is expressed ubiquitously in most tissues. The main function of clusterin is to interact and stabilize stress-induced proteins to prevent them from precipitation. Additionally, it participates in the control of cell proliferation, apoptosis, and carcinogenesis. The subcellular distribution of multiple isoforms leads to the diversity of clusterin functions.

Antibody	Clone	Localization	Catalog Family
Clusterin	A-9	Mem & Cyt	AMB33, AXB33

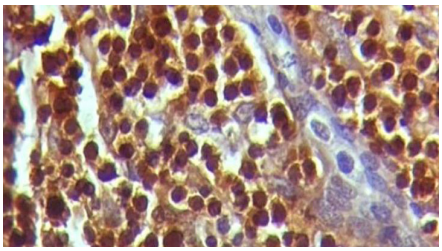
CD57



CD57 is a marker expressed in the membrane of NK cells and other T cells such as CD8+ lymphocytes, and by a small percentage of CD4+/ CD45R0+ T lymphocytes in lymph node germinal centers. CD57 is also expressed in Normal neuroectodermal cells and striated muscle. It reacts with tumors derived from neuroendocrine cells including neuroendocrine tumors of diverse origins, pheochromocytomas, paragangliomas, medulloblastoma, and varying proportions of neural tumors such as schwannomas, neurofibromas, neuromas, and granular cell tumors.

Antibody	Clone	Localization	Catalog Family
CD57	NK/804	Membrane	AMB56, AXB56

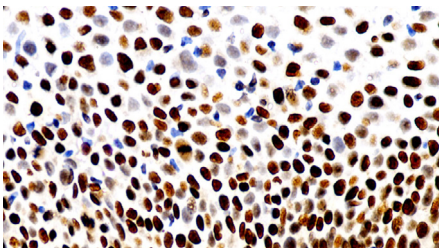
BOB-1



B cell specific Octamer Binding protein-1 is a Coactivator of OCT-2. It appears to mediate antigen-dependent germinal center formation. BOB1 is recommended for use as part of a panel of antibodies to aid in the differentiation of malignancies of B cell origin. BOB.1 expression in a variety of established B-cell lines, represents different stages of B-cell development has shown a Bcell-specific expression pattern. LP cells in nodular lymphocyte that are predominant Hodgkin lymphoma their germinal centerderived are consistently immune positive for BOB.1. Some cases of classical Hodgkin lymphoma show BOB.

Antibody	Clone	Localization	Catalog Family
BOB-1	TG14	Nuc/Cyt	AMB59, AXB59

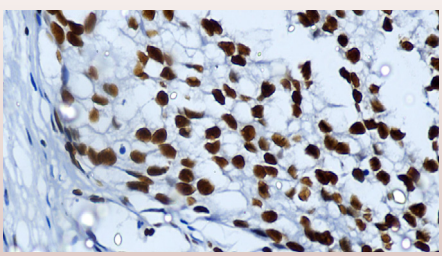
Retinoblastoma



Retinoblastoma gene / protein. Tumor suppressor gene at 13q14 it Encodes a 110-114 kDa nuclear protein that plays an important role in cell cycle progression by regulating cell cycle arrest at G1-S. Retinoblastoma (Rb) is a rare tumor of retina with mutations at chromosome 13Activation of ATF-2 initiate's expression of TGF-beta2 which in turn inhibits transcription of genes affecting cell growth. Bilateral mutation of the Rb gene may play a role in the development of malignant tumors.

Antibody	Clone	Localization	Catalog Family
Retinoblastoma	13A10	Nucleus	AMB61, AXB61

Histone H3



Histone H3 (also known as Histone H3.1t, H3/t, H3t, or H3/g) encoded by the gene HIST3H3/H3Ft, is one of the nuclear proteins responsible for the nucleosome structure of the chromosomal fiber in eukaryotes. They play a crucial role in transcription regulation, DNA repair, DNA replication and chromosomal stability. Acetylation and or methylation of Histone H3 occur in response to various stimuli and have a direct effect on the accessibility of chromatin to transcription factors and, therefore, gene expression.

Antibody	Clone	Localization	Catalog Family
Histone H3	PHH3/471R	Nucleus	ANB88, AYB88

IHC PANEL MARKERS - Head & Neck Cancer

BioGenex Primary Antibody Format and Pack Size

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Prefix	Type	Species	Suffix	Volume and Format
AM/AN	Monoclonal	AM-Mouse/AN-Rabbit	-5M/5ME	6 mL - Ready-to-use (manual)
AM/AN	Monoclonal	AM-Mouse/AN-Rabbit	-10M/10ME	10 mL - Ready-to-use (i6000™)
AX/AY	Monoclonal	AX-Mouse/AY-Rabbit	-YCD/YCDE and -50D/50DE	16 mL and 5 mL Ready-to-use (Xmatrx®)
AR	Polyclonal	Rabbit	-5R/5RE	6 mL - Ready-to-use (manual)
AR	Polyclonal	Rabbit	-10R/10RE	10 mL - Ready-to-use (i6000™)
AW	Polyclonal	Rabbit	-YCD/YCDE and -50D/50DE	16 mL and 5 mL Ready-to-use (Xmatrx®)
MU/NU	Monoclonal	AM- Mouse/AN-Rabbit	-UC/UCE and -5UC/5UCE	1 mL and 0.5 mL Concentrate
PU	Polyclonal	Rabbit	-UC/UCE and -5UC/5UCE	1 mL and 0.5 mL Concentrate

Other Panel Markers from BioGenex	
Breast cancer panel	Neuroendocrine tumor
B&T cell Associated Lymphoma	Pancreas tumor
Cervical cancer	Liver cancer
Colorectal and stomach cancer	Kidney cancer
Lung cancer	Bladder cancer
Melanoma	Germ cell tumor
Muscle cancer	Vascular tumor
Ovarian cancer	Pituitary gland
Prostate/Testicular cancer	Esophagus cancer

For specific information on the individual antibody, please refer to the datasheets available on www.biogenex.com or call BioGenex Technical Support at **1(800)421-4149** or write to support@biogenex.com.

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